Science and Technology for ACP Agriculture

Review of science and technology plans in ACP countries

for

CTA
Technical Centre for Agricultural and Rural Cooperation (ACP-EU)

by

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Acronyms

ACP	African, Caribbean and Pacific countries
AFD	Agence Française de Développement (France)
ARD	Agricultural Research for Development
ASARECA	Association for Strengthening Agricultural Research in Eastern and Central Africa
BMBWK	Bundesministerium für Bildung, Wissenschaft und Kultur (Austria)
CAADP	Comprehensive Africa Agriculture Development Programme
CABBIO	Centro Argentino-Brasileño de Biotecnología
CCST	Caribbean Council for Science and Technology
CGIAR	Consultative Group for International Agricultural Research
CIRAD	Centre de Coopération Internationale en Recherche Agronomique pour le Développement (France)
CIRDES	Centre international de recherche-développement sur l'élevage en zone sub-humide
CORAF	Le Conseil Ouest et Centre Africain pour la Recherche et le Développement Agricoles
CSP	Country Strategy Paper
CSS	Country Support Strategy
CTA	Technical Centre for Agricultural and Rural Cooperation ACP-EU
DAC	Development Assistance Committee (OECD)
DACST	Department of Arts, Culture, Science and Technology
DFID	Department for International Development (UK)
DGIS	Directorate-General for Development Cooperation (the Netherlands
ECDPM	European Centre for Development Policy Management
ECSIEP	European Centre on Pacific Issues
EIARD	European Initiative for Agricultural Research for Development
EU	European Union
FAO	UN Food and Agriculture Organization
FARA	Forum for Agricultural Research in Africa
GFAR	Global Forum for Agricultural Research
ICIMOD	International Centre for Integrated Mountain Development
ICT	information and communication technology
IDRC	International Development Research Centre (Canada)
IFS	International Foundation for Science
IICA	Inter-American Institute for Cooperation on Agriculture
INCO	International Cooperation programme (European Commission)
IARS	International Agricultural Research Systems
IDB	Inter-American Development Bank
IFS	Fondation Internationale pour la Science
IMF	International Monetary Fund
IRD	Institut de recherche pour le développement
ISNAR	International Service for National Agricultural Research
IVIC	Instituto Venezolano de Investigaciones Científicas
LAC	Latin America and the Caribbean
MAPP	Multi-country Agricultural Productivity Program (World Bank)
NARS	National Agricultural Research System

NATDS	National Agricultural Technology Delivery Systems
NEPAD	New Partnership for Africa's Development
NGO	Non-Governmental Organisation
NIHERST	National Institute of Higher Education, Research, Science and Technology (Trinidad)
NIP	National Indicative Plan
NSI	National System of Innovation (South Africa)
ODI	Overseas Development Institute (UK)
OECD	Organisation for Economic Cooperation and Development
R&D	Research and Development
RAWOO	Advisory Council for Development Research (the Netherlands)
RSP	Regional Strategy Paper
RTD	research and technology for development
RWTH	Rheinisch Westphälische Technische Hochschule (Germany)
S&T	science and technology
SACCAR	Southern African Centre for Cooperation in Agricultural and Natural Resources Research and Training
SDC	Swiss Agency for Development and Cooperation
SIDA	Swedish International Development Agency
SPAAR	Special Programme for African Agricultural Research
STD	science and technology for development
UNDP	United Nations Development Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
USAID	United States Agency for International Development

1 Introduction

This report summarizes the findings of a review of science and technology (S&T) policy plans of African, Caribbean and Pacific (ACP) countries. The agricultural sector plays a crucial role in the economies of most of these countries; the review therefore focused on their agriculture-related S&T policies. The Department of Technology and Society Studies of the University of Maastricht carried out the research for on behalf of the Technical Centre Agricultural and Rural Cooperation ACP-EU (CTA) in early 2003.

As part of this review, the authors compiled an inventory of existing S&T policy plans of ACP countries based on secondary sources of information, and assessed their contents taking into account

- existing technological innovation systems for agricultural development;
- the status of agriculture in existing development policies;
- the extent to which representatives of the agricultural sector were involved in preparing the policy plans; and
- earlier inventories of the S&T plans of ACP countries undertaken by international development organizations such as the African Academy of Sciences, FAO, IDRC, ISNAR and the World Bank, as well as bilateral donor agencies.

This review resulted in the compilation of 49 documents, including regional and country studies, plans and policies of ACP countries and the S&T policy plans and initiatives of international development agencies. These documents, all of which were published in the period 2000-2003, are available from CTA's Knowledge for Development website (http://knowledge.cta.int).

The study consisted of two phases and this report is organized accordingly. Section 2 reports on the findings of the review of the status of agriculture-related S&T in the development cooperation between the European Union (EU) and ACP countries. Section 3 summarizes the findings of phase 2, and examines the policies, plans, country and regional studies carried out by international development organizations. Finally, section 4 summarizes the conclusions drawn this review. The terms of reference for this study can be found in appendix 1, and details of the research methodology in appendix 2.

The study team was advised by a group of stakeholders in the three ACP regions – Ms Gisele Almeida, Dr John Mugabe and Dr Abel Rwendeire (Africa); Mr John Low (Pacific); and Dr P.I. Gomes (Caribbean). The team wishes to thank the members of this group, the staff of the ACP Secretariat and the European Commission (DG Development and DG Research) for their assistance at various stages of the review, and Rutger Engelhard for his editorial support.

2 Agricultural S&T in EU–ACP development cooperation

The first phase of this review focused on the extent to which ACP countries have given priority to S&T, in particular for agricultural development, in their policies and development cooperation programmes with the EU. To assess the priority given to S&T for development over time, the study team examined the text of the Libreville Declaration (1997), the Cotonou Partnership Agreement (2000) and the Country Strategy

Papers (CSPs) of 52 ACP countries that had been officially published on the website of the European Commission in January 2003.

In 1997, the 78 ACP countries adopted the Libreville Declaration, which aimed to improve the development cooperation between ACP countries and the EU by placing 'greater emphasis on the development of our human resources, on enhanced access to science and technology, especially on information technology and the financing of research relevant to our socio-economic development'.[1] In this declaration the ACP Group emphasized their determination 'to master information technologies and develop infrastructure, particularly telecommunication informatics'.

In 2000, the ACP countries and the EU concluded the Cotonou Partnership Agreement, the successor to the Lomé IV Convention, as the framework for development cooperation. In various articles, the Cotonou Agreement follows the appeal of the Libreville Declaration.[2] For instance:

- Article 23(j) states that the ACP-EU development cooperation should support the 'development of scientific, technological and research infrastructure and services, including the enhancement, transfer and absorption of new technologies'; and
- Article 33(4b) aims to improve the 'capacity to analyse, plan, formulate and implement policies, in particular in the economic, social, environmental, research, science and technology and innovative fields'.

Other articles of the Cotonou Agreement that refer directly or indirectly to S&T are as follows:

- *general approach*: Article 28(c) notes that cooperation should promote the free movement of persons, goods, services, capital, labour and technology among ACP countries;
- *ICTs and the information society*: Article 43(1) recognizes the importance of information and communication technologies, as well as active participation in the information society, as prerequisites for the successful integration of ACP countries into the world economy;
- *regional cooperation*: Article 30(1) emphasizes the need for (a) infrastructures, particularly transport and communications, including the development of regional opportunities in the area of ICT;
- *economic sector development*: Article 23(e) notes that cooperation shall support sustainable policy and institutional reforms and the investments necessary for equitable access to economic activities and productive resources, particularly economic and technological infrastructure and services, including transport, telecommunication systems, communication services and the development of information society;
- *investment and private sector development*: Article 21(3d) states that inter-firm linkages, networks and cooperation including those involving the transfer of technology and know-how at national, regional and ACP-EU levels should be encouraged; and

1 Libreville Declaration, www.acpsec.org/fiji/gabon/final_gb.htm.

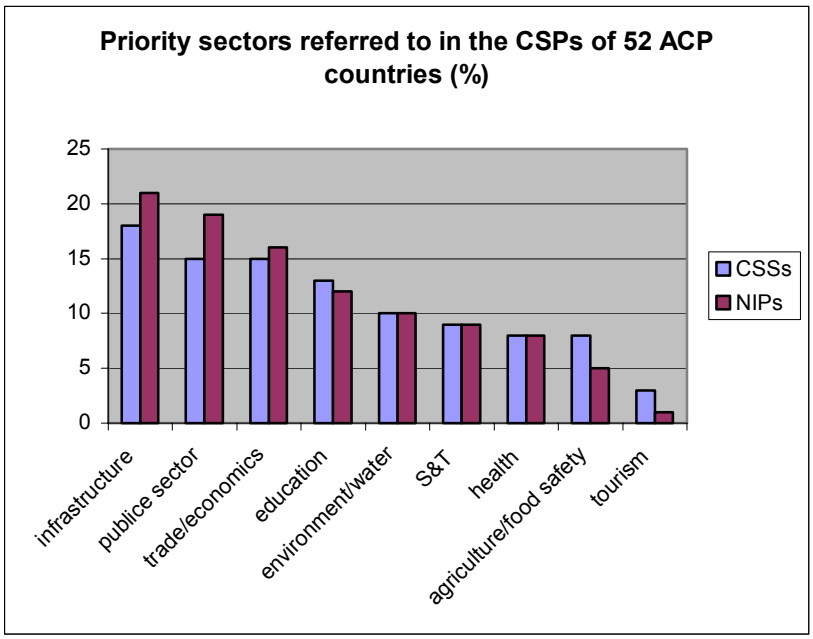
2 Cotonou Partnership Agreement, www.acp.int/en/cotonou/accord1.htm.

- *migration*: in Article 13(4) the parties agree to develop programmes to facilitate the access of students from ACP States to education, in particular through the use of new communication technologies.

Thus S&T features prominently in both the Libreville Declaration and the Cotonou Partnership Agreement. However, has this policy priority for S&T actually been translated into the development cooperation programmes for ACP countries that are funded by the EU?

Under the Cotonou Partnership Agreement, ACP governments must prepare Country Strategy Papers (CSPs), two papers that facilitate their dialogues with the Commission about development assistance. The first of these papers is the Country Support Strategy (CSS), in which an ACP country analyzes its socio-economic situation, outlines and assesses its own development strategy, and suggests EU support to a (limited) number of sectors. The second paper is the National Indicative Programme (NIP), in which an ACP country defines the focal sectors for its development cooperation with the EU, and proposes amounts of money to be allocated to each of them. In other words, in their CSS and NIP, each ACP country articulates its priorities for development cooperation with the EU.

This study reviewed the Country Support Strategies and National Indicative Programmes of 52 ACP countries to assess the extent to which S&T is referred to as a policy priority.



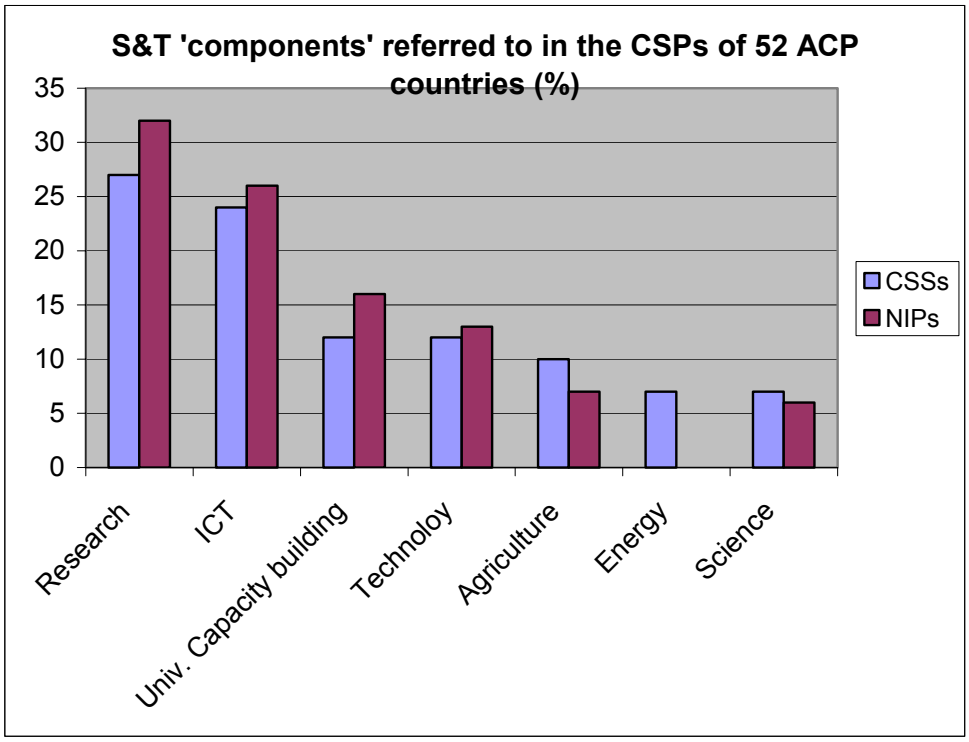
References to S&T in the CSSs and NIPs of 52 ACP countries

This review revealed that the development of the sectors 'infrastructure' (18%), 'public sector' (15%) and 'trade and macro-economics' are given the highest policy priority in the CSS papers of ACP countries. *S&T* features in 9% of the CSS, but usually only in passing. *S&T* 'components' (such as research, technology, university capacity building, energy, science, etc.) are mentioned in 22 (42%) of the 52 papers. Only two countries, Trinidad & Tobago and St Kitts & Nevis specifically mention S&T as a priority policy area for

development. In fact, the terms 'science and technology' and 'S&T ' are rarely used in the CSS papers.

The pattern revealed by the review of the CSS documents is also found in the National Indicative Programmes. Again, the traditional sectors of ACP-EU development cooperation – 'infrastructure', 'public sector' and 'trade and economics' – feature prominently in the NIPs. Again, 'S&T' features in only 9% of the NIPs. Only 19 countries refer to S&T components, and usually in passing. Just three countries – Trinidad & Tobago, St Kitts & Nevis and Grenada – mention S&T as a priority policy area. In other NIPs the terms 'science and technology' are rarely used.

Subdividing the S&T sector into the components *research, ICTs, university capacity building, technology, agriculture, energy and science*, 'research' is referred to in roughly 30% of CSS and NIP documents, 'ICTs' in about 25%, followed by university capacity building, technology, agriculture, energy and science.



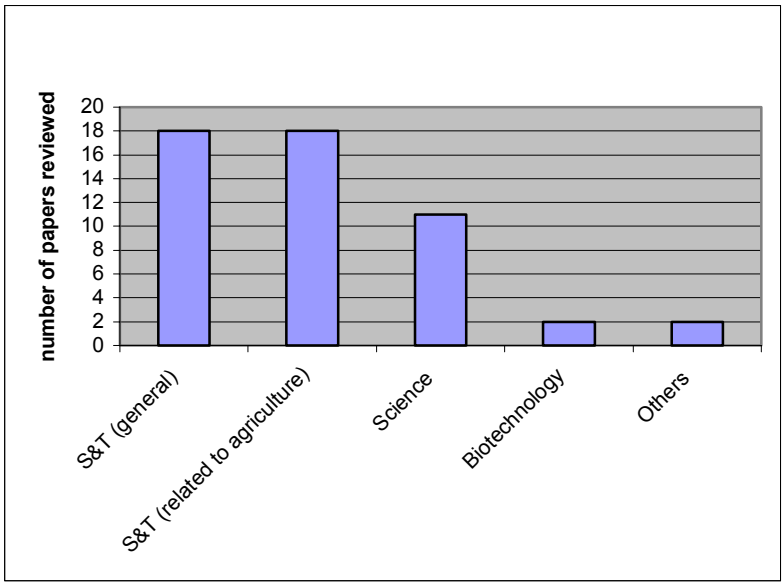
S&T components referred to in the CSSs and NIPs of 52 ACP countries

The substantial percentage of references to 'research' is due to the fact that 14 countries have allocated parts of their development cooperation budgets to research projects, although the actual funding involved is small. Grenada is the exception, and has made research part of a focal sector. Only five ACP states refer to 'S&T in agriculture' in their CSS and/or NIP documents. These are Belize (technology in general), Ghana (capacity building for post-harvest organizations), Guinea (technical education in agriculture), Madagascar (improving hydro agriculture) and Vanuatu (ongoing agricultural research). None of these documents, however, mention new technology sectors such as biotechnology, genetics, biomedical technologies and remote sensing technologies.

In 1999-2000, various ACP-EU dialogues on S&T were organized on behalf of the European Commission's DG Development. The outcomes of these dialogues were reported at the conference 'Demanding Innovation', held in Maastricht, the Netherlands, in October 2001. Yet, even the countries involved in these projects – such as Ghana, Senegal and Uganda – did not prioritize S&T in the policy documents that provide the framework for their development cooperation with the EU. The overall conclusion must therefore be that, despite the importance ACP countries attached to S&T in the Libreville Declaration, S&T actually plays only a subordinate role in ACP-EU development cooperation.

3. Review of policy plans and country and regional studies carried out by international development agencies

In the second phase of this study, the team reviewed the S&T policy plans and country and regional studies carried out by 19 multilateral and non-governmental organizations[3] and five bilateral donor agencies.[4] Additional materials related to agricultural S&T policies, plans and studies of ACP countries were also obtained from libraries and from the web. Most of the documents reviewed were published in the period 2000–2003. Of the numerous papers examined, 49 were considered to be relevant for this study.



S&T policy plans and studies reviewed; breakdown by area of focus (*n*=49)

Of these 49 policy plans and country and regional studies, 36 related to *S&T in development*, and 18 dealt specifically with *S&T in agriculture*. Most of the latter focused

[3] The organizations included the ACP Secretariat, CIRAD, the European Commission (DG Development and DG Research), FAO, IFS, IRD, ISNAR, IVIC, ODI, RWTH, PPRI (South Africa) and Wageningen Research Centre, (the Netherlands). The following organizations were also approached but did not respond: ECDPM, the European Centre on Pacific Issues (ECSIEP), FARA and its regional organizations ASARECA, CORAF and SACCAR, and the World Bank.

[4] DGIS (the Netherlands) and IDRC (Canada). The following donor agencies were also approached but did not respond: BMBWK (Austria), SDC (Switzerland) and SIDA (Sweden).

on National Agricultural Research Systems (NARS). Of the remaining 13 documents, 11 focused on *science policies,* two on *biotechnology,* and two on other areas. Six of the 49 documents were published before 2000, while the other 43 were published in the period 2000-2003. These reports were then reviewed to identify policy trends in leading development organizations and in ACP countries (as referred to in the country and regional studies).

All of these reports can be downloaded from the CTA Knowledge for Development website (http://knowledge.cta.int/index.php/filemanager/list/19/).

3.1 Trends in the S&T policies of international organizations

On the basis of the 49 reports, the authors examined recent trends in the S&T policies of the European Commission, FARA, NEPAD, OECD and the World Bank.

European Commission
In 2001, the European Commission (DG Development) acknowledged the importance of agricultural research for development (ARD) and adopted a strategy to promote the European Initiative for Agricultural Research for Development (EIARD), the Consultative Group for International Agricultural Research (CGIAR) and regional research networks such as ASARECA, CIRDES, CORAF and SACCAR (Vialatte, 2001). In 2002, the Commission extended this strategy to include 'support to ARD at sub-regional level' focusing on national, regional and international agricultural research systems and research implementation (Vialatte, 2002). The participating organizations in this latter initiative included the CGIAR, FARA and GFAR, contributed their expertise in building partnerships at regional and national levels (EC, 2000a,b).

In preparation for the World Summit on Sustainable Development (2002), the European Commission's DG Research, together with the South African government, organized the ACP–EU Ministerial Forum on Research for Sustainable Development in Cape Town, South Africa (EC, 2002c; EU, 2002). The Forum was attended by delegations of 41 of the 78 ACP countries, 25 of which were represented by the ministers responsible for their country's S&T policies. At the end of the Forum, the participants issued the 'Cape Town Declaration on Research for Sustainable Development', which contained a number of elements that also featured prominently in the Commission's 'Science and Society' action plan for Europe, such as:

- bolstering sustainable development processes with the results of demand-led S&T policies;
- strengthening national research capacities by encouraging and facilitating careers in science; and
- promoting regional integration of S&T policies, fostering centres of excellence, and enhancing cross-border sharing of research capacity and expertise (EC, 2002a).

Later, the ACP group and Commission officials prepared the Cape Town Plan of Action (Bellemin, 2002; EC, 2002b). This was a first step by the Commission towards establishing an S&T dialogue with ACP countries, and to the further internationalization of European research aimed at global sustainable development. The Plan of Action defines strategic

areas in the agricultural and agro-industrial sectors, with special attention to the relations between biotechnology, agro-industrial technologies and ICTs.
The plan can be regarded as an interesting first attempt to formulate a coherent S&T policy within the framework of the Cotonou Agreement. Formal government commitments are needed before effective research strategies can be developed at either the ACP or EU levels. They must also be linked to activities undertaken under the Commission's 6th Framework Programme (EC, 2002d, 2003). No such formal commitments have yet been made.

A linkage with the Framework Programme could help to improve coordination within the Commission. As long ago as 1996, the Netherlands government's Advisory Council for Development Research (RAWOO) suggested that the Commission could build on the former INCO-DC programme. It also stressed the need for closer coordination in those fields that require a multidisciplinary approach, such as agriculture and health (RAWOO, 1996).

The conclusion to be drawn from the various reports is that the Commission had a dedicated instrument for S&T cooperation with ACP countries. Even though limited reference is made to S&T in the ACP Country Strategy Papers, agricultural research programmes could undoubtedly benefit from support under the Framework Programme coordinated by DG Research. However, the procedures to be followed to obtain support under the Framework Programme are complex and differ substantially from those under the Cotonou Partnership Agreement.

World Bank

Over the past 20 years the World Bank has financed many S&T projects, including support and loans to the CGIAR, IDRC and SPAAR, as well as S&T capacity building, especially in agriculture (Daly, 1999, 2000). The World Bank has promoted projects that would encourage greater cooperation among developing countries. However, over this period the Bank had no consistent approach or strategy for developing the scientific and technological capacities within developing countries (Crawford and Brezenhoff, 2001). The implementation of such a consistent strategy would require more and better interaction among Bank staff, who work on S&T issues.

In 2002, the World Bank published a strategy paper that signified a change in its approach to S&T for development (World Bank, 2002). It established an internal S&T thematic group (which included representatives of the CGIAR) to raise awareness of S&T and its role in development, and to foster collaboration among a wide range of international partners such as the OECD, the Third World Academy of Sciences and UNESCO. The World Bank is currently redefining its strategy regarding S&T, with the aim of improving coordination among the various actors.

OECD

The OECD has always been at the forefront of S&T studies, although few of the relevant documents could be located. One exception was the paper *OECD/DAC Donor-Developing Country Dialogues on National Strategies for Sustainable Development*, which dealt with capacity building, planning and management in Tanzania, highlighting the role of village

communities (OECD, 2001). However, neither S&T nor agriculture is explicitly referred to in the study.

FARA

The Forum for Agricultural Research in Africa (FARA) is the successor to the World Bank's Special Programme for African Agricultural Research (SPAAR). In 2002 FARA launched its Multi-country Agricultural Productivity Programme (MAPP) for Africa for the period 2003–2012 (FARA, 2002b). The programme, developed by FARA and NEPAD, addresses the need for national agricultural technology delivery systems. The paper, however, focuses on programme development in countries that meet certain eligibility criteria, such as satisfactory macroeconomic conditions and sector policy support and government commitment.

FARA's 2002 strategy document highlights the Forum's support to NARS, IARS, the CGIAR and the private sector. FARA's funding has been extended to 2012, and the forum is recruiting new staff (FARA, 2002a).

As one of the major coordinating bodies for agricultural research in Africa, FARA has developed into a key agency in promoting S&T policies and capacity building. Through its relation with NEPAD, a link between agricultural S&T policies and general development policies could be made.

NEPAD

In its medium-term programme for 2003–2005, the New Partnership for Africa's Development (NEPAD) intends to strengthen cooperation among NGOs, especially those focusing on biotechnology, ICTs and national innovation systems (NEPAD, 2002b). This emphasis on NGO cooperation is novel for African governments, and could represent an interesting opening for organizations such as CTA. NEPAD has also stressed the benefits of voluntary participation and the corresponding contribution of governments.

In 2003, NEPAD established the African Forum on Science and Technology for Development (AFSTD) to promote the application of S&T for economic growth and poverty reduction. In 2001, the FAO and NEPAD launched the Comprehensive African Agriculture Development Programme (CAADP), for the period 2002-2015. In spite of the fact that NEPAD stresses voluntary participation, CAADP could become a programme with significant budgets for agriculture and agricultural research. At a time when the funds for agricultural research are declining, the programme offers a sign of hope.

3.2 Regional studies and plans

Beside the policy trends at the international levels, the documents reviewed revealed a great number of developments that take place at the regional and national levels.

AFRICA – General

After decades of neglect, investments in S&T programmes in Africa appear to be increasing. UNESCO's *World Science Report 2002: Africa* (Gaillard *et al*., 2002), for example, noted that during the 1990s donors and developing country governments showed little

interest in S&T for development, but that the situation is now changing. Africa must now devise long-term strategies to build the capacity of the continent's scientific infrastructure, and to improve the conditions for scientists by offering them adequate salaries and reasonable career opportunities. There seems to be an urgent need for policies that will increase the effectiveness of African NARS, which must become more demand-driven, responsive and client-oriented (Chema *et al.*, 2002, unpublished ISNAR document (2002).

In an exhaustive inventory of the *biotechnology sector* in Africa, Mugabe (2002) revealed that that biotechnology research is ongoing in only a few countries. South Africa is leading biotechnology research and development in Africa and uses, along with Egypt and Zimbabwe, third-generation techniques. Other countries, such as Ghana, Kenya and Uganda use third-generation techniques but have yet to develop products and processes. Tanzania and Zambia have engaged in second-generation techniques.

NEPAD's research agenda has rekindled governments' interest in biotechnology programmes, and several countries are now putting in place effective national biotechnology policies.

Sub-Saharan Africa

The continuing need for funding of S&T for African agriculture is evident from the report of a CGIAR stakeholders' meeting in 2002. The meeting reviewed the reasons for the minimal impact of agricultural research in the region and possible ways to improve performance in the future. [5] The meeting concluded that the CGIAR research organizations were on the right track, but needed to focus much more on Africa (CGIAR, 2002). In so doing the CGIAR recognized that the performance of sub-Saharan agricultural research needs to be enhanced and indicated appropriate actions to be taken by all stakeholders.

More than a decade ago, a study of the African Academy of Science (Idachaba, 1991) urged producer and consumer groups to support agricultural research, in particular the NARS, in sub-Saharan Africa. While welcoming the World Bank's SPAAR programme, the report advised that the programme should not focus exclusively on governments, but also on the private sector. Donor agencies were evidently suffering from 'aid fatigue' among their domestic constituencies, so that other sources of funding also needed to be activated and tapped. Idachaba's report may reflect the thinking of the time, but researchers still frequently cite it.

Over the past 30 years the S&T sector in sub-Saharan Africa has not been able to create a dynamic and sustainable process of scientific production and reproduction of national scientific communities. Informed public constituencies need to be formed to generate transparent and convincing S&T policies (Gaillard, 2002). Science institutions need to be better prepared to engage effectively in the economic sphere. Otherwise, the continent is unlikely to be able to respond to the challenges posed by biotechnology, due to the

[5] Two relevant reports are by Willem Stoop, 'A study and comprehensive analysis of the causes for low adoption rates of agricultural research results in West and Central Africa: possible solutions leading to greater future impacts: The Mali and Guinea case studies', , and by Lucas Brader, 'A study about the causes for low adoption rates of agriculture research results in West and Central Africa: possible solutions leading to greater future impacts'.

current low status of agricultural biotechnology, and the corresponding low level of public funding for biotechnology research in sub-Saharan Africa (Mugabe, 2003). R&D spending is low, but it is rising. Institutional arrangements in Egypt, South Africa and Zimbabwe are being made to stimulate biotechnology research. In other countries though, coherent government support for R&D institutions, or for the development of regulatory instruments have still to be created (Mugabe, 2003).

It might be argued that there are very hopeful signs, since funding for biotechnology research appears to be increasing in Africa. If public constituencies can be created, S&T in agriculture in general and biotechnology in particular, may develop rapidly as it has elsewhere.

Africa by country

The situation described above is confirmed at the level of individual countries. Based on a study of the NARS, Idachaba (1998) concludes that S&T systems need to be enhanced and proposed a strategy for strengthening NARS throughout Africa.

Yiemene (2001) examined technical change and agricultural research and delivery systems in rural Ethiopia, focusing on poor farmers. He noted the lack of a clear methodology of innovation and of related policy development, and called for a realignment of training, methodologies and other aspects in order to enhance the effectiveness of existing S&T systems.

South Africa offers an example of such an integrated policy. In 2002, the South African Ministry of Arts, Culture, Science and Technology published an R&D strategy based on three pillars: innovation; science, engineering and technology, human resources and transformation; and effective government policy. The Ministry believed that ICTs and biotechnology would play key roles in the future. The new Department of Science and Technology will coordinate a coherent performance management system by using research as a key function. The associated strategic plan for agriculture focuses on knowledge and innovation in a broad perspective, including indigenous knowledge, biotechnology, earth observation and aspects such logistics, all of which require an integrated approach. Although agriculture is not the main focus of the strategic plan, it nevertheless provides an example of how agricultural S&T can be integrated into a general policy and a medium-term strategy up to the year 2008 (Ministry of Arts, Culture and S&T, 2002).

In a way, the South African strategy can be seen as a response to an OECD survey on the country's policies in the area of Science, Technology and Innovation in 2002. The government intends to invest further in a National System of Innovation (NSI) and to develop biotechnology research as a main factor in its S&T policy, despite the fact that overall expenditures on agricultural S&T are decreasing (OECD, 2002). The picture that emerges is that the role of S&T in South Africa is strongly supported by government, but that the importance of S&T in agriculture is declining.

Gaillard and Waast (2000) examined various country studies of science in Africa for the European Commission (DG Research) and the French Ministry of Foreign Affairs. Some of the country studies noted by Waast and Gaillard include:

Burkina Faso: In spite of weak human and material resources, Burkina Faso has maintained its place in the global scientific system. It is coherent and well articulated both internally and in the international environment, which could be related to a well-elaborated science plan. The challenge will be to develop and apply further ideas and improvements in the strategic plan (Khelfaoui, 2000a).

Cameroon: The national scientific research system is relatively stable and comparatively well organized, but is defined by its external relations and the subsequent dependence on donor funding. The system is characterized by the lack of proper communication between research end-users and their socio-economic needs and the scientists involved (Gaillard and Khelfaoui, 2000).

Ivory Coast: Most research is related to agriculture. The recent restructuring and numerous mergers of research organizations reflect both the instability and the progressive formulation of the national system of scientific research (Khelfaoui, 2000b).

Nigeria: Prior to the political and economic crisis in 1985, Nigeria was one of the most successful countries in terms of scientific production. The crisis had dramatic consequences for S&T establishments, and by 2000 Nigeria had lost its leading position, even though human resources were still available. Future prospects are dim – there are no plans to reactivate the Nigerian universities, and no scientific policy has emerged to spur technological development. The only means to halt the resulting brain drain would be to increase academic salaries (Lebeau *et al*., 2000).

Tanzania: Tanzania's agricultural policy (1989) acknowledges the need to downsize the agricultural research system, to refocus and link research, extension and NGOs to the development and transfer of agricultural technology. The policy could be criticized for its lack of clear research priorities and for the dispersion of research efforts that has led to frequent reorganizations in the recent past. Despite the agricultural restructuring programmes financed by the World Bank, through SPAAR, overall research outputs are poor. Even so, in recent years Tanzania has managed to maintain and even increase its principal position in African science (Gaillard, 2000).

Caribbean

On the whole, the status of S&T in the Caribbean is stronger than in sub-Saharan Africa, although some of the similar trends are evident, such as the declining public funding of S&T and the lack of coordinated S&T policies.

Loans from the World Bank, the International Monetary Fund (IMF), the Inter-American Development Bank (IDB) and others seem to have imposed restrictions on the development of S&T (Cetto and Vessuri, 2002). International cooperation does not form a systematic part of national S&T programmes, but is included in a rather *ad hoc* manner. International donors, multilateral organizations and the private sector show little interest in cooperating with Caribbean scientific institutions in order to achieve sustainable development in the region. Attempts are now being made to set up regional funds.

The lack of interest of international organizations, as revealed by the lack of cooperation and systematic strategies, has resulted in the relative stagnation of programmes such as

the Centro Argentino–Brasileño de Biotecnología (CABBIO). This is clear in the report of the Caribbean Council for Science and Technology, *Assessment of Needs in Science and Technology* (CCST, 1998), which reviewed national S&T policies and identified NARS in which agriculture plays an important role in the productive sector. Although there have been attempts to develop national S&T policies in the Caribbean, much remains to be done.

In a later report, the CCST (2000) makes the case for enhancing the potential of small countries by harmonizing S&T policies at the regional level. Agriculture is addressed as a specific policy area. The report proposes capacity building through national S&T councils, which would need more political and financial support. The report thus represents an attempt to harmonize S&T policies, but recognizes that without political support such policies will remain a dream. This absence of regional cooperation as a political priority is also noted in the report of the CGIAR stakeholders' meeting in 2002. The report summarizes the CGIAR's cooperation with NARS in Central America in 2001, and notes the lack of enthusiasm for regional cooperation projects (CGIAR, 2002).

A growing number of Caribbean countries have carried out national studies and adopted S&T policies. Guyana, for example, issued an S&T policy paper (undated) to support the national development plan in which agriculture is a crucial element. The aim of the policy is to move away from current arrangements, in which funding is mainly provided by the government (CCST), towards self-financing. Another country, Trinidad and Tobago, has a well-elaborated S&T policy plan that is manifest in government's funding of the National Institute of Higher Education, Research, Science and Technology (NIHERST).

4 Conclusions

This study represents a preliminary review of the national and regional S&T policy plans of ACP countries and of reports compiled by international organizations and bilateral donor agencies with regard to S&T policies, particularly those related to agricultural development in ACP countries.

During the 1980s and 1990s, in most ACP countries the funding for S&T programmes declined. Despite some notable exceptions – such as Burkina Faso, Ghana, South Africa, and Trinidad and Tobago – governments seem to have minimized their support for S&T, in particular in the agricultural sector. On the basis of this review, it can be concluded that S&T for agriculture also plays a minor role in ACP-EU development cooperation, despite the sector's substantial contribution to the economies of these countries.

In the past most bilateral donor agencies, such as DFID (UK), AFD (France), DGIS (the Netherlands) and USAID, have supported substantial S&T programmes, particularly in agriculture. The rather naive optimism of the international financial institutions in the 1980s that the private sector would take over has not materialized in most ACP countries. Regional coordination and donor coordination do not appear to have improved. No central database is being maintained at this moment (as was done in the past by SPAAR or the FAO).

Nevertheless, in recent years the participation of donors in the various plans and policies of ACP countries has been substantial, especially the following cases:

- The European Commission in the Cape Town Plan of Action: The Commission and the South African Department of Science and Technology took the initiative in forging a consensus among the participants at the ACP–EU Ministerial Forum on Research for Sustainable Development. Agriculture and agro-industry were key strategic areas.
- The European Commission through the INCO-DC programme: agriculture was included as one of the main themes, possibly to correct the low priority given to it by ACP governments.
- The World Bank has for a long time financed various organizations and programmes dealing with agricultural technology.
- FARA's Multi-Country Agricultural Productivity Programme (MAPP) focuses on NARS, IARS and the CGIAR.
- NEPAD supports biotechnology through NGO cooperation and the Comprehensive Africa Agricultural Development Programme (CAADP).

The main conclusions to be drawn from this survey of S&T policies in ACP countries are as follows:

- The lack of emphasis given to S&T in the Country Strategy Papers indicates that ACP countries are facing other more urgent socio-economic challenges and have attached rather low priority to S&T.
- Agriculture and agricultural S&T do not have the priority that could be expected in view of the importance of the agricultural sector in the economies of ACP countries.
- Agricultural research and technology development appears to have declined steadily throughout the 1980s and 1990s, reflecting the decreasing donor interest in this sub-sector. One may therefore wonder to what extent agricultural research and technology development is surviving as a global public good.
- Multilateral organizations and bilateral donor agencies were unable to maintain their support for the sub-sector over the 1990s, even though many initiatives have been launched.
- Major donors like the European Union and financial institutions such as the World Bank are likely to become increasingly important in the rescue of agricultural research, through programmes like the 6th Framework Programme (to support agricultural research) and FARA (to coordinate technology development in Africa).

The implications for CTA can be summarized as follows:

- ACP countries themselves do not give priority to agricultural S&T. Any initiative designed to support S&T will need to address this reality.
- The EU is in a rapid process of change. The earlier emphasis on S&T for development has given way to other priorities, especially in DG Development. DG Research made a valiant effort to rescue the INCO programme, although since 2000 funding has apparently not kept up with previous levels of support for ACP countries. In addition, development-oriented policies, such as those focusing on institutional capacity building, will need constant support in order to survive.
- In the interviews conducted for this study (not reported here), CTA was seen as a likely agency to take the initiative in this field, especially with regard to ACP interests. This means that CTA could assist in rebuilding constituencies for

agricultural S&T, or for S&T policies in general, in ACP countries and in Europe. South Africa could be a good starting point; NEPAD may prove to be an effective partner for Africa. The Caribbean Council for Science and Technology might be the partner in the Caribbean region.

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Appendix 1: Rebuilding Constituencies for Agricultural S&T Policy Making in ACP Countries.

Introduction

This appendix contains a proposal for a programme, which could help CTA in rebuilding constituencies for agricultural S&T policy making in ACP countries. S&T for agriculture, both 'traditional' and 'modern', are of particular interest for ACP countries because the agricultural sector is the engine of their economy for most of them. However, at a time of rapid technological innovation and of growing interest in 'indigenous technologies', many ACP countries fail to attach priority to these technologies. This stems partly from the bleak condition of research and technology for development in these countries, and partly from the long-standing uneasy relationship between development and technology. This uneasy relationship has resulted from the donors' suspicion of 'technological fixes' or 'white elephants'. In addition, their preoccupation with fighting poverty has often been translated into programmes that alleviate the most conspicuous symptoms of poverty rather than in interventions that provide the capacity to generate and manage economic growth in the South.

In this proposal, first a justification for a programme within CTA to help rebuilding constituencies for agricultural S&T policy making in ACP countries is provided. CTA's activities in this areas will be summarised and a proposal for action made..

Justification

As pointed out in the report, the World Bank has undertaken an effort to assess the status of agricultural research. In addition, NEPAD has acknowledged S&T as an important element in economic development. The 'ACP-EU partnership in S&T', proposed by Mr Philippe Busquin, the then EC Commissioner for Research to the ACP Group of States, to improve research capacities and enhance neglected technological innovation systems may be the most relevant of the recent initiatives. Substantial sums of funding for S&T in ACP countries may become available through this initiative.

ACP countries have explored the contours of such a new partnership during their ACP Ministerial Forum on Research for Sustainable Development, held in Cape Town in July 2002. They concluded their meeting with a strong and well-informed 'Cape Town Declaration on Research for Sustainable Development', to be presented at an ACP-EU Ministerial Forum on Research for Sustainable Development in Brussels. After serious delay in Brussels, Mr.Busquin's 'ACP-EU Partnership in S&T' is to be launched in Brussels in November 2003.

This recent EC initiative represents a welcome breakthrough for those ACP countries that wish to strengthen their institutional research capacities and technological innovation systems. As was pointed out in the report, few countries have as yet given priority to S&T in their country strategy papers. To benefit from the initiative, most ACP countries therefore face a difficult task. They will first need to formulate their national and regional S&T policy plans, informed by the corresponding policy dialogues that involve their research communities, the private sector and other end-users. They will then have to

ensure that S&T is included in the list of programme support priorities of the National or Regional Indicative Plans in order to be able to present their S&T policy plans to the ACP-EU Partnership in S&T. Only after that, they will have to get to know how to utilise effectively the funding instruments in the 6th Framework Programme (FP6) and in the 9th European Development Fund (EDF9). These are substantial challenges, particularly in the absence of mutual S&T policy support and information mechanisms for those ACP countries that wish to become active players in the ACP-EU Partnership in S&T.

According the Cotonou Agreement, EC support to ACP countries includes assistance for

- 'developing scientific, technological and research infrastructure and services; including the enhancement, transfer and absorption of new technologies' (Article 23j); and
- 'improving capacity to analyse, plan, formulate and implement policies, in particular in the economic, social, environmental, research, science and technology and innovation fields' (Article 33b).

Nevertheless, no ACP or European organisation or programme is currently mandated to help ACP countries to rebuild their S&T constituencies. This would be needed to provide support services to organise national policy dialogue on S&T for agricultural development, to feed the results of such a dialogue into S&T policy planning, or to use the EC funding instruments to obtain resources to implement their S&T policy plans. No organisation currently facilitates or encourages ACP countries to share and exchange *their* ideas and *their* opinions regarding 'policy issues' such as S&T reform and capacity building.
There is no forum to debate 'hot issues' such as biotechnology research in orphaned crops, remote sensing technology for water management, biological control of insect pests, intellectual property rights, or indigenous knowledge systems for modern ACP agriculture. No programme yet exists to assist ACP governments with information on how to develop adequate regulatory frameworks, required under many international conventions, or how to control the activities of international private research companies in the countries and protect intellectual property rights of their citizens.

CTA's activities in the area of S&T for Development

Rather than creating a new institution, CTA – in close cooperation with its partners in ACP countries – could develop a programme that includes such S&T policy support and information services. CTA is well positioned to undertake such an initiative. In interviews for this study, CTA was seen as a likely agency to take a greater initiative in this field. The ACP Group of States is its constituency, and its core mandate is to provide assistance to agricultural policy reform processes through its information, communication, capacity building and networking services and CTA has already developed itself a profile in this field with recent activities. For example, CTA

- undertook the leadership of an *ACP Informal Working Group on RTD* (set up as the counterpart of the EU Informal Expert Group on RTD[6] during an ACP Policy

[6] The EU Informal Expert Group on RTD is a semi-official group consisting of senior representatives of the research programs of all European donors, Norway and Switzerland.

Workshop on RTD in Legon in 2001) and convened this group twice (in Maastricht, October 2001 and in Cape Town, July 2002);
- attached to its web site a page on '*Knowledge for Development'*, which provides information to ACP research communities on how to engage in bilateral policy dialogues with the EC and individual EU donor agencies;
- restructured this web page into a web portal that could grow into a *virtual meeting point* where ACP S&T policy makers can share information, discuss policy issues and use information services provided by CTA and its partners;
- co-organised *expert consultations*, such as on Biosafety and Environmental impacts of genetic enhancement;
- orchestrated *advocacy* during the ACP Forum on Research for Sustainable Development in Cape Town ensuring that concepts and ideas that are important to the ACP Informal Working Group on RTD featured prominently in their 'Cape Town Declaration on Research for Sustainable Development' (such as demand-led research, involvement of research end-users including farmers and entrepreneurs, policy dialogue, the ACP Observatory on S&T for Development, and RTD diagnostics studies); and
- created a position on its staff for a *Coordinator, Science and Technology Strategies* (to be filled).

By providing S&T policy support and information services, CTA could bring these valuable initiatives together and provide the programmatic framework required for expanding them.

S&T policy support and information services: a proposal

This proposal for the development of ACP S&T policy support and information services by CTA and its ACP partners consists of two parts: the objectives of such services and a description of the various elements.[7]

Objectives of the ACP S&T policy support and information services
The objectives of the proposed S&T policy support and information services for ACP Agriculture could include:
- to create and heighten *awareness* of the potentials of S&T in ACP agriculture;
- to promote *policy dialogue* on S&T for agricultural development that will lead to well-informed national and regional S&T policy plans geared to enhancing institutional research capacity development and to fostering technological innovation systems in ACP countries;
- to provide information on *national regulatory frameworks* required under various international conventions in order to benefit optimally from mainstream international S&T efforts;
- to facilitate the establishment an ACP *advocacy* of senior agricultural scientists, policy makers, representatives of farmers' and business communities dedicated to infuse

[7] Parts of this proposal have already been presented to CTA during various presentations and discussion that took place in the course of this assignment and an associated assignment implemented by Contactivity BV, Leiden, The Netherlands.

new vigour into the ACP agricultural sector through the development, adaptation and application of appropriate technological innovations;
- to *enhance the ACP input* in international policy discussions on S&, spearheaded by agencies such as NEPAD and the World Bank;
- to raise *awareness regarding the ACP-EU Partnership in S&T*, and on issues that are relevant to agricultural development, in the ACP-EU policy debate on S&T;
- to provide *information on the (outcome of the) negotiations* to establish the ACP-EU Partnership in S&T, on the operational aspects of the Cotonou Agreement (and on funding instruments in the 6th Framework Programme (FP6) and in the 9th European Development Fund (EDF9) that are relevant to the ACP-EU Partnership in S&T; and
- to support informal ACP and ACP-EU S&T groups in formulating proposals for the *development of research capacity and technological innovations* systems to be considered by the ACP–EU Partnership in S&T.

Elements of the policy support and information services

The ACP S&T policy support and information services could consist of the following elements:

- An *ACP Informal Working Group on STD*, consisting of 20–25 senior scientists, policy makers and leading representatives of farmers' and business communities in ACP countries with an active interest in and talent for advocacy work in the EC. This group could initially consist of the core group of the existing ACP Informal Working Group on RTD, with additional representatives from NEPAD, Southern Africa, the Caribbean Council for Science and Technology and from the Pacific.[8] The principal activities of this Informal Working Group could comprise: (1) advocacy with respect to setting the agenda for the ACP-EU Partnership in S&T both in Brussels and NEPAD in Africa; and (2) initiating and fostering regional ACP Networks on S&T for Agriculture.
- A *small network secretariat at CTA,* in the person of CTA's Coordinator of Science and Technology Strategies with adequate administrative support;
- An *Observatory on S&T for ACP Agriculture* (currently being developed) in the form of an interactive web portal cum e-working space for
  - tracking and *analysing policy initiatives* and developments relevant to research capacity building and technological innovation systems in ACP agriculture;
  - *syndicating news* on the latest S&T applications relevant to ACP agriculture;
  - *debating S&T issues* and ideas relevant to the development of the agricultural sector in ACP countries;

[8] This ACP Informal Working Group on S&T for Agriculture could for example consist of: 1. Gisele d'Almeida (entrepreneur, Senegal); 2. Walter Alhassan (former Director, CSIR, Ghana), 3. Ellen Bontai-Doku Aryeetey (Head of Social Research Division, ISSER, Ghana); 4. Abel Rwendeire (UNIDO, ex-Minister of State for Industry and Technology, Uganda); 5. Dr Alex Tindimubona (Director, NURRU, Uganda); 6. Steve Mworia (entrepreneur, Tanzania); 7. Jospeh Semboja (REPOA, Tanzania); 8. Christopher Chetsanga (SIRDC, Zimbabwe); 9. Kothso Mokhele (NSR, South Africa); 10. Koeti Sousa Serodio (CHES&T, Mozambique); 11. Antonio Almonte Reynoso (Director, INDOTEC, Dominican Republic); 12. Audia Bernett (SRC, Jamaica); 13. John Low (Pacific Forum Secretariat); 14. George Alibaruho (UNECA's Africa Knowledge Network Forum); 15. John Mugabe (NEPAD); 16. A.Ventura (or someone from the Caribbean Council for Science and Technology); 17. Fernando Chaparro (ex-NARS secretary); 18 Calestous Juma (Professor of Technology Studies, Harvard University).

- *exchanging policy plans*, from the perspectives of agricultural and rural development; and
- featuring a *subscription service for newsletters* published by S&T institutes in ACP countries and EU Member States.

- A number of *S&T diagnostic studies*, including: (1) an inventory and policy analysis of existing S&T policy plans of ACP countries, with specific attention to existing technological innovation systems for agricultural development, and (2) field assessments of the intensity and quality of S&T national policy dialogues in a number of ACP countries (depending on the availability of funding from regional sources such as COMESA and CARICOM).
- In conjunction with the web portal, a *web magazine – S&T for ACP Agriculture* – to be issued four or six times per year with corresponding e-mail newsletters (supported by the publication of a limited number of hard copies) Each issue could focus on a specific theme (much like CTA's *ICT Update* in its new format) and become a web dossier providing the building blocks of the information services. The first issues could focus on themes such as: ACP-EU Partnership in S&T; funding instruments in the 6th Framework Programme (FP6) and in the 9th European Development Fund (EDF9); regulatory frameworks and why they are needed for S&T; intellectual property rights; indigenous knowledge for modern ACP agriculture; GM technologies for ACP agriculture; and capacity building for national and regional S&T.

Proposed plan of activities

The proposed plan of activities covers a period of 12 months, and should be regarded as a start-up phase for the ACP S&T policy support and information services within CTA. The activities will include:

- setting up the *ACP Informal Working Group* on S&T for Agriculture, using an inclusive process in which its members will become 'owners' of the initiative;
- organising five *regional workshops* to assess the interest in setting up regional S&T networks and to build capacity for implementing S&T diagnostic studies;
- carrying out S&T *diagnostic studies* (the exact number will depend on the level of funding from regional sources);
- transforming CTA's current web page *'Knowledge for Development'* into a multifunctional portal with a content management system that will allow information, documents, etc., to be uploaded from ACP countries; and
- publishing the first six issues of the web magazine *S&T for ACP Agriculture*.

It is envisaged that during the first six months

- the ACP *Informal Working Group* on S&T for Agriculture will focus on advocacy work for the agenda setting of the ACP-EU Partnership in S&T to be launched in November 2003;
- an *inventory and policy analysis* of existing S&T policy plans of ACP countries, with specific attention to existing technological innovation systems for agricultural development; and
- the development of the *multi-functional portal* to become a substantial information resource for ACP policy makers, with content predominantly generated in and uploaded from ACP countries and an effective online working space for the Informal Working Group.

The following six months, the focus the programme could widen and include

- the organisation of five *regional workshops* to assess the interest in setting up regional S&T networks and to build capacity for implementing S&T diagnostic studies;
- the implementation of a first series of S&T *diagnostic studies* (the exact number will depend on the level of funding from regional sources);

The ACP *Informal Working Group* on S&T for Agriculture could formulate – with support of CTA – a *five-year plan* for the policy support and information services to be presented to the ACP-EU Partnership in S&T.

These activities together form an ambitious plan for setting up the ACP S&T policy support and information services. However, CTA could gather together the members of its S&T network in ACP countries and EU Member States to request their assistance in implementing its programme. For example, CTA could seek the collaboration of the following individuals:

For *general assistance* in programme co-ordination

- CTA's S&T Policy Coordinator
- Khotso Mokhele, President, National Research Foundation, South Africa
- Antonio Almonte, Director, INDOTEC, Dominican republic

For expanding the *ACP Informal Working Group* on S&T in Agriculture, mobilising members of the EU Informal Expert Group on RTD and contacts within DG Research, and moderating their various meetings:

- Abel Rwendeire, UNIDO , ex-Minister of State, Uganda
- Audia Bernett, Director of the Scientific Research Council, Jamaica
- Gisèle d'Almeida, Entrepreneur, Senegal

For coordinating various rounds of *preparatory e-consultations*:

- CTA's S&T policy Coordinator
- Rutger Engelhard, Managing Partner, Contactivity, the Netherlands

For the publication of the web magazine *S&T in ACP Agriculture*

- David Dickson, Director, SciDev, UK
- Valerie Jones, Research Assistant, Contactivity, the Netherlands

For content management of the multifunctional web portal Knowledge for Development:

- CTA's S&T policy Coordinator with
- Content management support from Contactivity, the Netherlands

For implementing the *diagnostic studies*, including inventories and policy analysis studies of existing S&T policy plans and assessing national S&T policy dialogues:

- Wiebe Bijker, Professor, Faculty of Technology and Social Sciences, University of Maastricht
- Han Roseboom, Researcher, Policies for Institutional Innovation for Agricultural Research, ISNAR
- Ellen Bontai-Doku Aryeetey, Head, Social Research Division, ISSER, Ghana
- Koeti Sousa Serodio, Executive Officer, Ministry of Higher Education, Science and Technology, Mozambique

For developing *distance learning modules* on diagnostic studies and policy dialogue::

- Z. Franca, Head of Learning for Institutional Innovation, ISNAR;
- Robert Kriger, Manager, National Research Foundation, South Africa
- Mahamadou Quedraogo, Ministère de l'Enseignement supérieur et de la Recherche scientifique, Burkina Faso
- Wiebe Bijker, Professor, Faculty of Technology and Social Sciences, University of Maastricht

Appendix 2: Terms of reference

In December 2002, the Technical Centre for Agricultural and Rural Cooperation (CTA) requested the University of Maastricht to review existing policy plans for science and technology (S&T) in African, Caribbean and Pacific (ACP) countries, with a focus on agriculture-related S&T.

This focus on agriculture is due to the central role it plays in the economies of ACP countries. Although developments in agricultural S&T are likely to increase benefits to ACP countries, limited investments have been made thus far. Moreover, there are few organizations providing policy support and information services in the field of agricultural S&T in the ACP regions. CTA intends to develop a programme, together with the ACP partners, in order to bridge this gap. Hence, an inventory of policy plans and a policy analysis are necessary for CTA to take action.

The assignment as outlined in the contract (CTA, 2002) is the following:

- Prepare an initial inventory and policy analysis of existing science & technology policy plans of ACP countries, using mainly *secondary* sources of information.
- In preparing the initial inventory and policy analysis of existing science & technology policy plans, the contractor will use up-to-date material and will pay specific attention to existing technological innovation systems for agricultural development.
- The contractor will pay special attention to the place of agriculture in these policies and to the extent to which representatives of the sector were involved in preparing and making inputs to the policy document.
- The contractor is required to undertake a quick search and assessment of earlier inventories of science & technology plans of ACP countries undertaken by relevant international agencies such as the World Bank, ISNAR, the African Academy of Sciences, FAO, IDRC, bilateral donor agencies and others; this should be done partly by scanning relevant websites.
- The contractor will establish the extent to which relevant international agencies are willing to share their inventories with CTA.

Formulate a project proposal for an additional, more extensive inventory and policy analysis of science & technology policy plans, based mainly on primary sources of information in ACP countries, to be carried out in 2003 under the guidance of the ACP Informal Working Group on RTD.

- In formulating this proposal, the contractor will outline a methodology and will highlight priorities and institutional arrangements, especially mechanisms for dialogue, consultation and follow-up.
- The contractor will ensure that the proposal defines the knowledge and analyses that are needed in order to further RTD agenda-setting from an ACP perspective.

Louk Box (Maastricht University) coordinated the study as a joint activity with the European Centre for Development Policy Management (ECDPM). Additional members of the team were Nora Steinhauer and Johanna Ulmanen..

Appendix 3: Methodology

To fulfil the assignment, two actions were taken:

1. As a starting point, the role of S&T in the development cooperation between the European Union and the ACP countries was reviewed.
2. Other sources of information on the policies, plans, country studies and regional studies carried out by international development organizations were examined.

In this paper the results of the three actions are discussed and conclusions are drawn.

Phase 1

Country Strategy Papers, resulting from the Cotonou Partnership Agreement between the European Union and the ACP states, furnished most of the data gathered in the first phase of the study. At the end of this phase (15 February 2003) 52 Country Strategy Papers of 78 ACP countries were officially published on the European Commission's website.[9]

In the Country Strategy Papers, the various S&T sectors were identified and ranked by priority:

- very high priority (exclusive focal sector),
- high priority (focal sector) and
- low priority (non-focal sector or part of other sector).

The results of this review can be found in section 2 of this report.

Phase 2

In the second phase the authors collected additional policies, plans, country studies and regional studies of multilateral agencies, non-governmental organisations and bilateral donor agencies. They were approached by e-mail, telephone and personal interviews in which they were asked whether they were aware of, and/or could provide:[10]

- any S&T ACP policy plans, especially in the field of agriculture;
- any inventories of such plans; and
- any evaluation or opinions of such plans.

The institutions, agencies and organizations approached were:

Multilateral and non-governmental organisations:

- ACP Secretariat,
- Centre de coopération internationale en recherche agronomique pour le développement (CIRAD),
- European Centre for Development Policy Management (ECDPM),*
- European Centre on Pacific Issues (ECSIEP),*
- European Commission (DG Development and DG Research),
- UN Food and Agricultural Organization (FAO)
- Forum for Agricultural Research in Africa (FARA) and its regional organizations ASARECA, CORAF and SACCAR*

[9] See (recently updated site).: http://europa.eu.int/comm/development/body/csp_rsp/csp_en.cfm.

[10] The short description and questions are to be found in Annex 1.

- International Foundation for Science (IFS),
- International Service for National Agricultural Research (ISNAR),
- Instituto Venezolano de Investigaciones Científicas (IVIC),
- Overseas Development Institute (ODI),
- Institut de Recherche pour le Développement(IRD),
- Rheinisch Westphälische Technische Hochschule (RWTH), Aachen,
- Plant Protection Research Institute (South Africa),
- Research Centre of Wageningen University
- World Bank.*

Bilateral donor agencies/organizations:

- Ministerium für Bildung Schulen, Kultur und Wissenschaft (BMBWK), Austria,*
- Swedish International Development Agency (SIDA), Sweden,*
- Directorate-General Internationale Samenwerking (DGIS), the Netherlands
- Swiss Agency for Development and Cooperation (SDC), Switzerland,*
- International Development Research Centre (IDRC), Canada.

Some of these organizations did not respond, or could not provide the information requested (indicated with an asterisk '*'). The contact information was filed in a database in order to get an overview of the sources of the materials received and to be able to follow-up on communications.

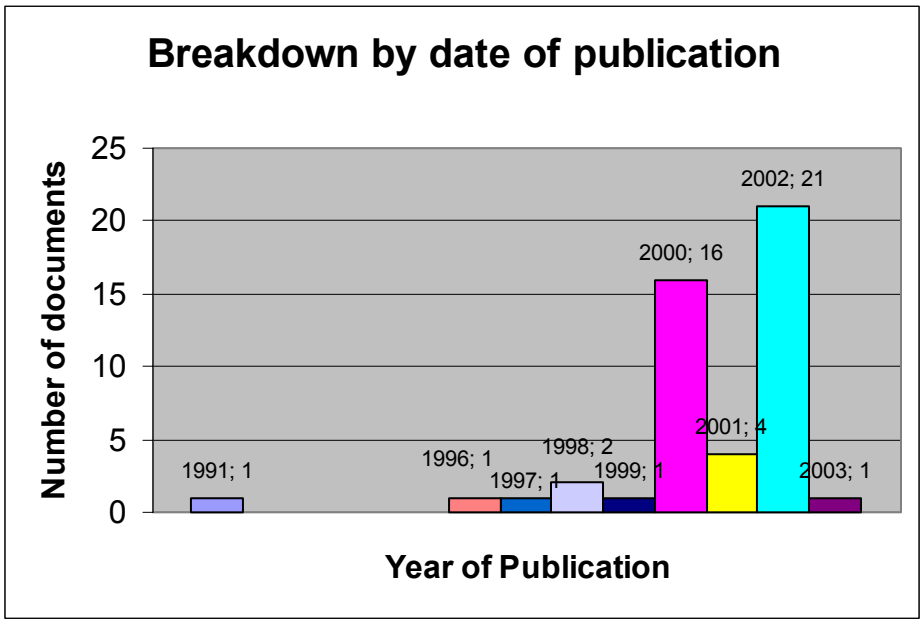


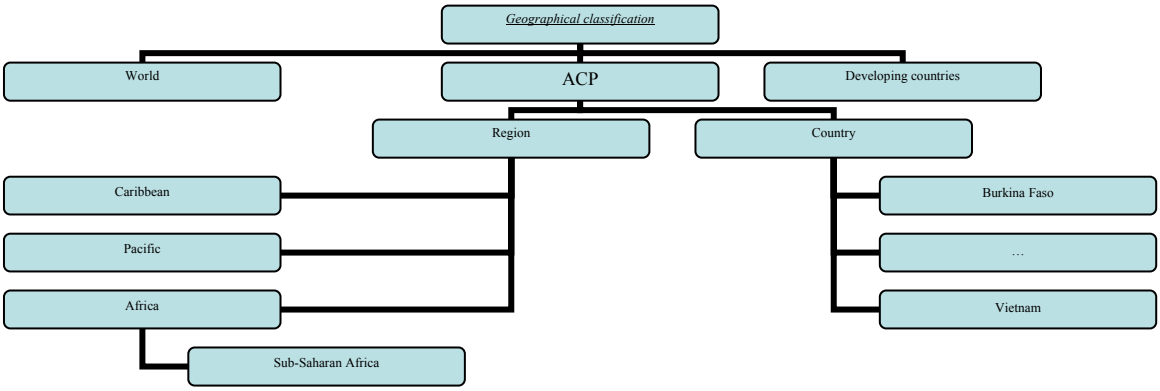
Figure 1: Breakdown of relevant publications by date of publication.

In addition to the documents received from these organisations, the plans, policies and studies were found on the Internet and in libraries. Since up-to-date material was requested, most of the policies, plans and studies were published in the period 2000-2003 (see figure 1).

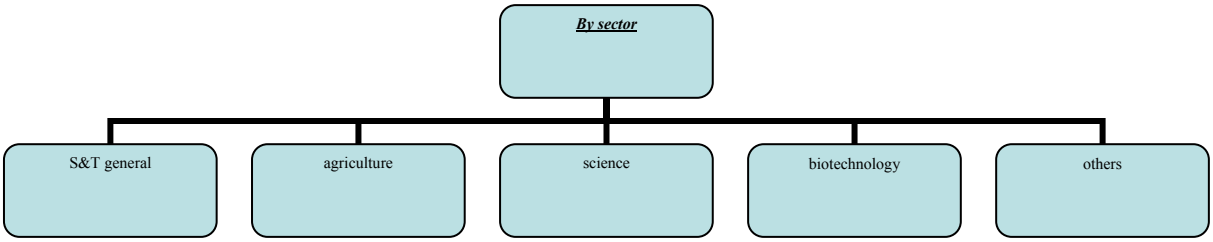
A literature database was set up, in which the documents classified according To geographical classification, sector, planning period, year of publication, author, and type of document (see figure 2).

Figure 2: Organisation of document database

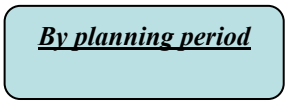
I.



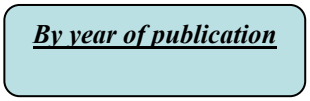
II.



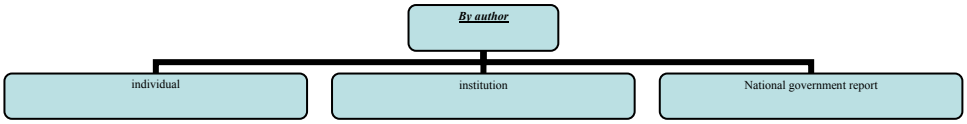
III.



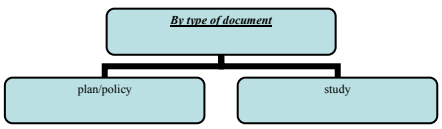
IV.



V.



VI.



The study team found numerous papers, of which 49 were regarded as relevant for this study. The papers were divided into two groups – those covering donor policies and initiatives to show trends in policymaking, and those dealing with regional and country studies, plans and policies. All of these papers can be downloaded from CTA's Knowledge for Development website (http://knowledge.cta.int).